

In Lai, col. 6, lines 13-14 succinctly delineates the heat dissipating flow of the integrated circuit chip 3 to the flex adhesive layer 6 to the buffer pad and the heat conductive piece 4. While Lai discloses an encapsulant 9, the encapsulant does not encapsulate the heat sink, but rather only encapsulates the other elements, as the Lai system teaches the conductive piece 4 being exposed for atmospheric dissipation of heat. For further reference, the Examiner is specifically directed to col. 6, lines 11-16 which provide that “the heat produced from the integrated circuit chip during operation can be dissipated through the following path: integrated circuit chip 3 → flexible adhesive layer 6 → buffer pad 5 → heat-conductive piece 4 → atmosphere.” Therefore, it is further submitted that Lai in-fact teaches away from the claimed encapsulation but rather teaches the heat conductive piece 4 being in direct physical contact with the atmosphere and not having an encapsulant material between the heat conductive piece and atmosphere.

As the Examiner notes, Huang teaches, *inter alia*, a quad flat non-lead package of a semiconductor device with an external epoxy molding material disposed exterior to the metallic heat sink.

If one of ordinary skill in the art were to combine Lai with the teachings Huang, the combination would be in direct contradiction to the specific and explicit teachings of Lai – the heat conductive piece 4 being in contact with the atmosphere. Therefore, one of ordinary skill in the art would not combine Huang with Lai because Lai teaches the heat conductive piece 4 being in contact with the atmosphere and including Huang’s teachings would prevent this noted benefit of Lai. Lai specifically discloses the benefits of the conductive piece 4 being in contact with the atmosphere, see for example col. 6, lines 18-20.

Therefore, it is submitted that the present rejection of claims 1, 3-9, 12 and 17 as being anticipated by multiple references under 35 U.S.C. §102(e) is improper because anticipation must be met by a single reference disclosing all limitations. Furthermore, it is submitted that a rejection of claims 1, 3-9, 12 and 17 based on the combination of Lai and Huang would be improper since Lai teaches away from the combination thereof.

As such, Applicants request reconsideration and withdrawal of the present rejection of claims 1, 3-9, 12 and 17 under 35 U.S.C. §102(e). Should the Examiner maintain the present claims as being unpatentable over Lai in combination with Huang, the Examiner must assert a new non-final rejection based on 35 U.S.C. §103(a). Should the Examiner assert a rejection under 35 U.S.C. §103(a), Applicants request further showing of the motivation to combine these references in view of Lai's explicit teaching away from such combination. Otherwise, passage of these claim to issuance is respectfully requested.

Rejection of Claims under 35 U.S.C. §103(a)

Claims 21-23 currently stand rejected under 35 U.S.C. §103(a) as being unpatentable over Lai. Applicants assert confusion as the Examiner, on page 6 of the present office action, refers to the teachings of Huang for encapsulating the metallic heat sink, the second substrate and the first substrate.

As discussed above, Lai teaches away from being combined with Huang because Lai specifically and explicitly teaches the heat conductive piece 4 being in contact with the atmosphere. Applicants resubmit the above-offered position regarding claims 1 and 17 and submit that position is further applicable as for the allowability of claims 21-23. Specifically, one of ordinary skill in the art would not be motivated to combine these references because one having ordinary skill in the art, upon reading the teachings of Lai would not prevent the heat conductive piece 4 from being in contact with the atmosphere.

Reconsideration and withdrawal of the present rejection is respectfully requested. In the alternative, Applicants request further clarification of this present rejection as the current rejection of record illustrates claims 21-23 being rejected solely in view of Lai. Should the Examiner maintain the present claims as being unpatentable over Lai in combination with Huang, the Examiner should assert a new non-final rejection based on 35 U.S.C. §103(a). Should the Examiner assert such a rejection, Applicants request further showing of the motivation to combine these references in view of Lai's explicit teaching away from such combination. Otherwise, passage of these claim to issuance is respectfully requested.

Accordingly, Applicants respectfully submit that the claims are in condition for allowance and that a timely Notice of Allowance be issued in this case. The Examiner is invited to contact the below-listed attorney if the Examiner believes that a telephone conference will advance the prosecution of this application.

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